United States Department of Agriculture
Agricultural Research Service

Pasture Systems & Watershed Management Research Laboratory

University Park, PA

Mission Statement & Strategies

The mission of the laboratory is to conduct research leading to the development of land, water, plant, and animal management systems, which insure the profitability and sustainability of northeastern grazing and cropping enterprises while maintaining the quality of ground and surface waters.

To achieve this mission, we conduct applied and basic research on new technology and actively develop and transfer these technologies to users. This is done through a combination of experimental, monitoring, and modeling approaches. We focus on providing the knowledge, capability, and tools to solve the important problems.

The research program supporting the mission focuses on managing the system, whether it is a nutrient management, grazing, or farming system. Specific research projects target the major components of the system, including key interactions and linkages. Research in farm productivity, profitability, and resource sustainability is focused at the farm management scale. Research on degradation of soil and water resources are focused at the source, farm management, and watershed scales.

Major Specific Research Projects

- Management and economics of integrated, grazing-based dairy farms in the Northeast.
- Grassland ecology for productive, profitable, and sustainable forage-livestock systems in the Northeast.
- Nitrogen and carbon dynamics and their control in pastures, harvested grasslands, and riparian zones.
- Integrate chemical and hydrologic processes for phosphorus management in agricultural watersheds.

Research Scientists

Dr. Robert A. Byers - Entomologist
Characterizes insect biodiversity and ecology in pasture systems, focusing on plant-insect interactions. Develops non-chemical control methods for insect pests of pasture and forage crops. Evaluates plant resistance germplasm to control clover root curculio in alfalfa and white clover.

Dr. William J. Gburek - Hydrologist
Conducts research on characterizing hydrology of the near-stream environment, defining the hydrologic basis for nitrogen and phosphorus transport in natural systems, and simulating hydrology/water quality interactions at the watershed scale.

Dr. David L. Gustine - Plant Physiologist
Conducts research on population dynamics of white clover in pastures and parasite-controlling properties of some pasture species, with emphasis on their potential for controlling internal parasites of livestock.

Dr. Harry B. Pionke - Soil Scientist/Research Leader
Conducts research on developing methods to determine land source areas and hydrologic origins of streamflow on watersheds using isotopically and geochemically based techniques, and determining the effects of seasonality and storm events on nutrient export from watersheds.

Dr. C. Alan Rotz - Agricultural Engineer
Develops integrated farming systems for dairy production in the northeastern U.S. Uses modeling approaches to evaluate and design alternative strategies for improving the efficiency, profitability, and environmental sustainability of dairy farms.

Dr. Matt A. Sanderson - Agronomist
Conducts research on the agronomy, ecology, and management of grazing lands to enhance their productivity, sustainability, and profitability. Focuses on plant species diversity, plant-animal interactions, and grazing systems.

Dr. Ronald R. Schnabel - Soil Scientist
Conducts research on nitrogen and carbon storage and bioavailability in soils converted to pasture or receiving organic amendments. Determines the fate of nutrients in differently vegetated riparian buffers and the impact of riparian zone management on stream biology.

Dr. Andrew N. Sharpley - Soil Scientist
Conducts research on the cycling of phosphorus in soil-plant-water systems in relation to soil productivity and water quality and includes the management of animal manures, fertilizers, and crop residues. Develops decision making tools to identify sensitive areas of the landscape and to target management alternatives and remedial measures to reduce the risk of phosphorus loss from farms. Focuses overall on achieving results that are both economically beneficial to farmers and environmentally sound.

Dr. R. Howard Skinner - Plant Physiologist
Conducts research on how abiotic and biotic stresses affect pasture plant productivity, forage quality, and morphological development. Evaluates and develops models for quantifying the interactive effects of stresses on plant growth and development.

Dr. Kathy J. Soder - Animal Scientist
Develops and evaluates management strategies to improve the economic and environmental sustainability of pasture-based animal production systems through improved animal productivity and health. Develops decision aids to assist producers in selecting and adopting these management strategies.

Dr. William L. Stout - Soil Scientist
Conducts research on the nitrogen cycling and storages in grazing lands and their subsequent impact on grassland production and water quality. Develops methods and tools to predict the impact of grazing animals on water quality.

Post Doctoral Associates

Dr. Benjamin F. Tracy–Ecologist
Dr. Peter Kleinman–Soil Scientist

Staff

Administrative Support
David Biller–Facility Coordinator
Tonya Cherry–Budget & Accounting Assistant
Gary Reed–Administrative Support Assistant
Annette Smith–Administrative Officer

Program Support
Donita Gibboney–Program Office Assistant
Teri-Anne Jordan–Program Office Manager

Research Support
Gerald Elwinger–Agronomist
John Everhart–Agricultural Science Technician
Gordon Folmar–Hydrologist
Dennis Genito–Biological Science Technician
Jeffery Gonet–Agricultural Science Technician
Ruth Haldeman–Biological Science Technician
Earl Jacoby–Hydrologic Technician
Stephen LaMar–Biological Science Technician
Charles Montgomery–Physical Science Technician
Barton Moyer–Chemist
David Otto–Research Laboratory Mechanic
William Priddy–Agricultural Science Technician
James Richards–Hydrologic Technician
Donald Simmons–Computer Specialist
Paul Spock–Physical Science Technician
Terry Troutman–Hydrologic Technician
Joan Weaver–Physical Science Technician
Stefan Weaver–Soil Scientist

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ARS Mission Statement

As the principal in-house research arm of the U.S. Department of Agriculture, the Agricultural Research Service has a mission to:

Conduct research to develop and transfer solutions to agricultural problems of high national priority and provide information access and dissemination to: ensure high-quality, safe food and other agricultural products, assess the nutritional needs of Americans, sustain a competitive agricultural economy, enhance the natural resource base and the environment, and provide economic opportunities for rural citizens, communities, and society as a whole.

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